

## CLAIMS

What is claimed is:

- 1        1.        An apparatus, comprising:  
2                    a first member defining a first set of channel walls, the first set of channel  
3 walls having a first channel gap between two respective facing walls of the first set of  
4 channel walls;  
5                    a second member defining a second set of channel walls, the second  
6 member being coupled to the first member such that the second set of channels walls  
7 are interlaced with the first set of channel walls;  
8                    a fluid inlet provided on one of the first and second members; and  
9                    a fluid outlet provided on one of the first and second members.
- 1        2.        The apparatus of claim 1, wherein a second channel gap between two  
2 respective facing walls of the interlaced first and second sets of channel walls is  
3 narrower than the first channel gap.
- 1        3.        The apparatus of claim 1, wherein a channel structure defined by the first  
2 and second sets of channel walls provides at least two fluid flow paths between the fluid  
3 inlet and the fluid outlet.

1           4.     The apparatus of claim 1, wherein a channel structure defined by the first  
2     and second sets of channel wall provides primarily non-linear flow paths between the  
3     fluid inlet and the fluid outlet.

1           5.     The apparatus of claim 1, wherein the first member includes a first index  
2     feature which cooperates with a corresponding second index feature on the second  
3     member to aid in aligning the first and second members with respect to each other.

1           6.     The apparatus of claim 1, wherein a surface of a wall of the first set of  
2     channel walls is tapered at an angle of greater than about five degrees.

1           7.     An apparatus, comprising:  
2                    an enclosure having a fluid inlet and a fluid outlet with fluid communication  
3     with the fluid inlet; and  
4                    a channel structure inside the enclosure between the inlet and the outlet  
5     defining at least two fluid flow paths.

1           8.     The apparatus of claim 7, wherein the channel structure provides primarily  
2     non-linear flow paths.

1           9.     The apparatus of claim 7, wherein a wall of the channel structure is  
2     tapered at an angle of greater than about five degrees.

1           10.    A method, comprising:  
2                   forming a first member defining a first set of channel walls, the first set of  
3 channel walls having a first channel gap between two respective facing walls of the first  
4 set of channel walls;  
5                   forming a second member defining a second set of channel walls;  
6                   coupling the second member to the first member such that the second set  
7 of channels walls are interlaced with the first set of channel walls;  
8                   providing a fluid inlet on one of the first and second members; and  
9                   providing a fluid outlet on one of the first and second members.

1           11.    The method of claim 10, wherein a second channel gap between two  
2 respective facing walls of the interlaced first and second sets of channel walls is  
3 narrower than the first channel gap.

1           12.    The method of claim 10, further comprising:  
2                   providing at least two fluid flow paths between the fluid inlet and the fluid  
3 outlet.

1           13.    The method of claim 10, further comprising:  
2                   providing primarily non-linear flow paths between the fluid inlet and the  
3 fluid outlet.

1           14.    The method of claim 10, further comprising:  
2                    providing a first index feature on the first member;  
3                    providing a second index feature on the second member; and  
4                    aligning the first and second members in accordance with the first and  
5 second index features.

1           15.    The method of claim 10, further comprising:  
2                    tapering a surface of a wall of the first set of channel walls at an angle of  
3 greater than about five degrees.

1           16.    A method, comprising:  
2                    providing an enclosure having a fluid inlet and a fluid outlet with fluid  
3 communication with the fluid inlet; and  
4                    forming a channel structure inside the enclosure between the inlet and the  
5 outlet defining at least two fluid flow paths.

1           17.    The method of claim 16, further comprising:  
2                    providing primarily non-linear flow paths between the fluid inlet and the  
3 fluid outlet.

1           18.    The method of claim 16, further comprising:  
2                    tapering a surface of a wall of the channel structure at an angle of greater  
3 than about five degrees.

1           19.   A system, comprising:  
2                   an electronic component; and  
3                   a cold plate thermally coupled to the electronic component, the cold plate  
4 comprising:  
5                   a first member defining a first set of channel walls, the first set of  
6 channel walls having a first channel gap between two respective facing walls of the first  
7 set of channel walls;  
8                   a second member defining a second set of channel walls, the  
9 second member being coupled to the first member such that the second set of channels  
10 walls are interlaced with the first set of channel walls;  
11                  a fluid inlet provided on one of the first and second members; and  
12                  a fluid outlet provided on one of the first and second members.

1           20.   The system of claim 19, wherein a second channel gap between two  
2 respective facing walls of the interlaced first and second sets of channel walls is  
3 narrower than the first channel gap.

1           21.   The system of claim 19, wherein a channel structure defined by the first  
2 and second sets of channel walls provides at least two fluid flow paths between the fluid  
3 inlet and the fluid outlet.

1           22.    The system of claim 19, wherein a channel structure defined by the first  
2   and second sets of channel wall provides primarily non-linear flow paths between the  
3   fluid inlet and the fluid outlet.

1           23.    The system of claim 19, wherein the first member includes a first index  
2   feature which cooperates with a corresponding second index feature on the second  
3   member to aid in aligning the first and second members with respect to each other.

1           24.    The apparatus of claim 19, wherein a surface of a wall of the first set of  
2   channel walls is tapered at an angle of greater than about five degrees.

1           25.    The system of claim 19, further comprising:  
2                   a heat dissipation device coupled to the cold plate by a loop of tubing;  
3                   cooling fluid disposed in the tubing; and  
4                   a pump adapted to circulate the cooling fluid.

1           26.    The system of claim 25, further comprising:  
2                   a fan adapted to provide cooling air to at least one of the heat dissipation  
3   device and the cold plate.

1           27.    A system, comprising:  
2                   an electronic component; and

3                   a cold plate thermally coupled to the electronic component, the cold plate  
4 comprising:  
5                   an enclosure having a fluid inlet and a fluid outlet with fluid  
6 communication with the fluid inlet; and  
7                   a channel structure inside the enclosure between the inlet and the  
8 outlet defining at least two fluid flow paths.

1           28.   The system of claim 27, wherein the channel structure provides primarily  
2 non-linear flow paths.

1           29.   The system of claim 27, wherein a wall of the channel structure is tapered  
2 at an angle of greater than about five degrees.

1           30.   The system of claim 27, further comprising:  
2                   a heat dissipation device coupled to the cold plate by a loop of tubing;  
3                   cooling fluid disposed in the tubing; and  
4                   a pump adapted to circulate the cooling fluid.

1           31.   The system of claim 30, further comprising:  
2                   a fan adapted to provide cooling air to at least one of the heat dissipation  
3 device and the cold plate.